**IT Applications Unit 3, AOS 1, Online Communities**

Complete the following, from pgs, 14-18: **Network communication standards**

**Networks are classified according to below and we will study the following:**

1. Network Categories: LAN, WAN
2. Network Architecture, client-server; peer-to-peer; internet peer-to-peer; intranet
3. Network communication standards
4. Network hardware and software
5. Transmission media
6. Network security

**Network communication standards**

1. **Why are network standards required?**

Network standards are designed to overcome problems of incompatibility on a network so hardware and software component will work on any network.

1. **What is a protocol?**

A protocol is a standard that defines how two devices transfer data on a network.

1. **What is the OSI?**

Open System Interconnection, OSI, is the network communication standard which defines a model for using protocols in seven layers.

**Ethernet**

1. **Describe the nature of Ethernet**

Ethernet is the communication standard for networks that communicates over a single cable used by all devices on the network.

1. **What are frames?**

Frames are short messages sent between nodes connected to a network.

1. **Identify the 4 components of all Ethernet frames.**

An Ethernet frame contains the destination nodes address, the sending nodes address, data and parity check information.

1. **Fig. 1-9 on p 17 lists the Ethernet type, cable type, maximum length and transfer rate for Ethernet transmissions. The College typically uses 100BaseTX, Cat 5 or10Gbase-T. What are their respective maximum lengths and transfer rates?**

* 100BaseTX, maximum length 85 meters and transfer rate of 100Mbps
* Cat5 / 10Gbase-T, maximum length 85 meters and a transfer rate of 10Gbps

**TCP/IP**

1. **Describe the nature of TCP/IP**

Transmission Control Protocol/Internet Protocol, TCP/IP, is the most common method for transmitting data on a network. TCP/IP is the protocol on which the internet is based. It is the standard for transmission over the internet and defines how data is transferred from one part of a network to another.

1. **TCP/IP uses smaller packets than other protocols, why is this an advantage on the internet?**

Packets of information do not necessarily travel the same path from the originating device to the destination device. Using smaller packets provides more options to the network management software to enable load balancing.

**802.11 wireless standard**

**1 What does this standard do?**

The 802.11 wireless standard defines how two computers or devices can communicate using radio waves.

**2 What is a Wi-Fi network?**

A network that uses the 802.11 wireless standard in known as a Wi-Fi network. Wi-Fi networks allow computers that are up to 50 meters apart to connect wirelessly.

**3 Different wireless standards transmit at different frequencies. What is the advantage of the newer 802.11n standard?**

Wi-Fi networks that use the 802.11b or 802.11g standards to transmit data at a frequency of 2.4GHz while the 802.11a standard uses 5GHz. The newer 802.11n standard operated at 5GHZ or 2.4GHz and in expected to work faster and be able to support a larger range than pervious standards.